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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/315,068	05/20/1999	TOSHIRO HAYAKAWA	Q54431	5982

7590 08/29/2002

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EXAMINER

ZAHN, JEFFREY N

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 08/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/315,068

Applicant(s)

HAYAKAWA ET AL.

Examiner

Jeffrey N Zahn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Objections***

**Claim 7 is objected to because of the following informalities: this claim is a duplication of Claim 6. Appropriate correction is required.**

***Claim Rejections - 35 USC § 112***

**Claims 1-2 and 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Regarding Claim 1, it is not clear 1) where the waveguide layers are in relation to the quantum well layer, 2) if the entire active region is formed of InGaAsP as claimed, 3) what part of the upper cladding layer is removed in relation to the remainder of the semiconductor laser, i.e. at the peripheral of the device, etc., and 3) what the configuration of the cladding layer is after the upper waveguide is removed, i.e. a ridge structure as claimed in Claim 2.

In addition, to overcome indefiniteness issues, the claimed subject matter must include the structural details of the cladding/waveguide interface that the Applicant has disclosed as part of the claimed invention.

**Claims 1-2 and 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural**

**connections. See MPEP § 2172.01.** The omitted structural cooperative relationships are: 1) the thicknesses of the waveguide and cladding layers that enable the selective removal of the waveguide layer to the cladding layer interface and 2) the relationships of the cladding and waveguide layers, i.e. as discussed above.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

**Claims 1-2 and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukunaga (US 6195373).**

Regarding Claim 1, Fukunaga discloses a semiconductor laser (Fig. 1A-1F) comprising an active region (4) which includes at least a quantum well layer (col. 6, lines 3-11) and upper and lower optical waveguide layers (3)(5)(6) and is of  $\text{In}_x\text{Ga}_{1-x}$ .

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$x\text{As}_y\text{P}_{1-y}$  (where  $x=0-1$ ,  $y=0-1$ ) (col. 4, line 58- col. 5, line 13) and upper and lower cladding layers (8)(2) formed of AlGaAs (col. 4, line 58- col. 5, line 13), wherein

at least one of the optical waveguide layers is not smaller than .25um in thickness (col. 5, lines 35-40), and

a part of the upper cladding layer on the upper waveguide layer is selectively removed up to the interface of the upper cladding layer and the upper optical waveguide layer (col. 5, lines 14-23; see also Fig. 1C).

Regarding Claim 2, Fukunaga discloses a ridge structure (Fig. 1A-1F) as claimed.

Regarding Claim 5, Fukunaga discloses the upper (5) and lower optical waveguides (3), on opposite sides of the quantum well layer (Fig. 1A), being different thicknesses (col. 5, lines 35-40).

Regarding Claims 6 and 7, Fukunaga discloses the use of AlGaAs (6) as a layer above the waveguide layer (5) whereby the total thickness of these layers is equal to .3um to .8um (col. 5, lines 35-40).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-2 and 5-7 have been considered but are moot in view of the new ground(s) of rejection.


**Conclusion**

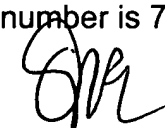
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. van der Poel et al. (US 5574743), Nagai (US 5892785), Nagai (US 5920586), Fukunaga et al. (US 6127691), Geels et al. (US 6181721), Fukunaga (US 6195373) and Fukunaga (US 2002/0044584).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey N Zahn whose telephone number is 703-305-3443. The examiner can normally be reached on M-F: 8:30-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
Jeffrey Zahn  
August 23, 2002

  
QUYEN LEUNG  
PRIMARY EXAMINER

  
SPE Paul Ip